

What is claimed is:

1. A receiver comprising a processor and an RF bridge coupled to the processor to receive a reference signal from the processor, the RF bridge including:
 - first and second frequency converters coupled to respective first and second antennas; and
 - a third frequency converter coupled to outputs of the first and second frequency converters.
2. The receiver of claim 1, wherein:
 - the first and second frequency converters receive respective first and second signals from the respective first and second antennas; and
 - the third frequency converter heterodynes signals from the first and second frequency converters to provide a signal that is characterized by a frequency difference modulated onto the reference signal, the frequency difference being a difference between a frequency of the first signal and a frequency of the second signal.
3. The receiver of claim 1, wherein the RF bridge further includes:
 - a frequency source coupled to the first frequency converter; and
 - a fourth frequency converter coupled to the reference signal and coupled between the frequency source and the second frequency converter.
4. The receiver of claim 3, wherein the RF bridge further includes a filter coupled between the fourth frequency converter and the second frequency converter, the filter providing a stop band at a highest frequency of a signal from the frequency source and a pass band at a shifted frequency that is a sum of a frequency of the reference signal and a lowest frequency from the frequency source.
5. The receiver of claim 1, further comprising:

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6. A receiver comprising a processor and an RF bridge coupled to the processor to receive a reference signal from the processor, the RF bridge including:

a frequency source coupled to the first frequency converter; and
a third frequency converter coupled to the reference signal and coupled between the frequency source and the second frequency converter.

8. The receiver of claim 6, wherein the RF bridge further includes a filter coupled between the third frequency converter and the second frequency converter, the filter providing a stop band at a highest frequency of a signal from the frequency source and a pass band at a shifted frequency that is a sum of a frequency of the reference signal and a lowest frequency from the frequency source.

~~9.~~ A receiver comprising an RF bridge and a processor coupled to the RF bridge to receive an information signal from the RF bridge, the processor including:

a digital frequency source to generate a reference signal based on a signal from a clock source, the reference signal being coupled to the RF bridge; and

circuitry to detect a frequency difference from

10. The receiver of claim 9, wherein the ~~circuitry~~ to detect includes:

a first Fourier transformer having a first center frequency; and

a second Fourier transformer having a second center frequency, the first center frequency being different than the second center frequency.

11. The receiver of claim 10, wherein the circuitry to detect further includes a

a first digital signal at the first center frequency coupled to the first Fourier and

a second digital signal at the second center frequency coupled to the second

12. The receiver of claim 10, wherein the circuitry to detect further includes a

13. The receiver of claim 10, wherein:

the circuitry to detect further includes a frequency converter coupled between an output of the frequency divider and an input of the frequency detector; an output signal and inputs to the first and second Fourier transformers; and

the digital frequency generator further generates a third digital signal coupled

14. The receiver of claim 9, wherein the RF bridge includes:

first and second RF frequency converters coupled to respective first and second antennas; and

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a third RF frequency converter coupled to outputs of the first and second RF frequency converters.

15. The receiver of claim 14, wherein:

the first and second RF frequency converters receive respective first and second signals from the respective first and second antennas; and

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the third RF frequency converter heterodynes signals from the first and second RF frequency converters to provide a signal that is characterized by a frequency difference modulated onto the reference signal, the frequency difference being a difference between a frequency of the first signal and a frequency of the second signal.

16. A method comprising steps of:

capturing a frequency difference that is present at first and second antennas; producing an information signal onto which the frequency difference has been modulated; and

analyzing the information signal to determine the frequency difference.

17. The method of claim 16, wherein the step of analyzing includes:

forming a first Fourier transform of the information signal at a first center frequency;

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forming a second Fourier transform of the information signal at a second center frequency, the second center frequency being different than the first center frequency.

18. The method of claim 17, wherein:

the steps of forming the first and second Fourier transforms form the transforms over an integration interval; and

the integration interval is inversely proportional to a difference between the first center frequency and the second center frequency.

frequency difference to be $\frac{\pi}{2T} \frac{(A-B)}{(A+B)}$, where T is the integration interval, A is the first

Fourier transform and B is the second Fourier transform.

20. The method of claim 17, further comprising a step of determining a range between an emitter generating the signal and a point between the first and second antennas.

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